ARTIFICIAL FISH HABITAT

Every December, people look for alternative uses for Christmas trees once the colored lights and fragile glass decorations are removed following the holiday season. Most North Dakotans want to avoid just tossing spent trees out on the curb for garbage pickup.

Some turn the dried pine into firewood, others make sure trees wind up recycled into mulch used by tree nurseries. And still others contact North Dakota Game and Fish, wondering if the Department is collecting trees for habitat projects in lakes around the state.

In the 1980s and early 1990s, Game and Fish biologists and wildlife club members were busy collecting discarded Christmas trees and other materials to complete dozens of artificial reefs in state waters. Circumstances changed in the mid-1990s. Water levels in most lakes increased significantly because of above-normal winter snows and summer rains. This water flooded shoreline vegetation, naturally creating the same type of habitat tree reefs were designed to mimic.

Statewide, fisheries managers have scaled back the number of tree reef projects in the last decade or so, with the exception of Bowman-Haley Reservoir and Patterson Lake in the southwest. It's not because artificial reefs didn't work, but primarily because the need no longer existed, or manpower was limited in areas where reefs were needed.

Now, with a couple of dry years in a row, water levels are receding away from vegetation instead of flooding it.

Past Experiences

Humans have created underwater structures to attract fish for centuries. Most of these were intended to concentrate fish so they were easier to catch, either by hook and line or by net. In modern times, the primary intent is sometimes to attract fish for anglers, but most often artificial habitat is designed to add spawning or escape structure to a lake.

In North Dakota, Game and Fish personnel first attempted such a project by sinking car bodies in Lake Tschida – also called Heart Butte Dam – in 1958. That practice, understandably, didn't last long, and it wasn't until the late 1970s that fisheries biologists started using Christmas trees to try to address underwater habitat deficiencies.

Lake Sakakawea, Jamestown Reservoir in Stutsman County, Lake Audubon in McLean County, and Lake Darling in Renville County were some of the first waters to have tree reefs installed. This was a labor-intensive process that involved tying dozens of trees together, and weighting them with cement blocks so the trees would sink and remain in one place.

One of the characteristics of trees is that they naturally decompose over time, so other materials were also used when longer-lasting reefs were needed. In North Dakota, scrap tires were readily available and used, in conjunction with tree reefs, in Jamestown Reservoir, Lake Elsie in Richland County and Moon Lake in Barnes County. These were not always effective, presumably because of the petroleum based product, which didn't allow plant or animal growth.

Wildlife club members from the Hankinson area prepare trees for placing in Lake Elsie, Richland County, in 1986.

Craig Bihrle

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Game and Fish collected trees after Christmas 1989 for an artificial reef project to create spawning structure in Lake Audubon. Since the early 1990s, such projects have been on hold because water conditions in much of the state improved dramatically, reducing the need for giving Mother Nature a hand.

Construction of artificial reefs is time-consuming for Game and Fish staff and local club members, who have volunteered thousands of hours for reef projects at their local lakes. Short-term research on those projects showed the effort was generally worthwhile. Many reefs enhanced fishing and/or natural reproduction of sport and forage fish, as well as provided cover for 10 or more years.

Depending on the lake, artificial reefs may not provide any benefits, and they are not a quick fix in lakes where benefits would occur. And, experiences over the last 10 years reiterate that natural fish habitat – a combination of water and plants, bottom structure and depth – is more productive than artificially placed habitat. However, some bodies of water have little structure, and adding artificial habitat may be the only way to enhance a fishery in the long term.

Maintaining productive natural habitat is an ongoing challenge in some North Dakota lakes. Following high water in the mid-'90s, many lakes and reservoirs have receded, some to levels experienced during the late 1980s drought. Fisheries biologists are again trying to address problems in lakes where fish populations are declining. Artificial fish habitat could again play a larger role.

Following are some of the issues biologists will consider, From Both Sides.

ONE SIDE

• Artificial reefs can attract fish and therefore increase angling success in areas where fishing is poor, even though fish populations are healthy.

• Tree reefs can provide spawning habitat or escape cover, not only for gamefish like perch and crappie, but also for forage fish like fathead minnows.

• Tree reefs provide a way to recycle discarded Christmas trees for an additional use, and the trees, over time, decay naturally. The trees are free and readily contributed by concerned citizens.

• Artificial reefs are ideal projects to involve local anglers or wildlife club members in an effort designed to yield local benefits and/or ownership.

THE OTHER SIDE

• Artificial reefs are labor intensive and benefits are not always predictable.

• If artificial habitats are placed in lakes where they are not needed, they could increase fish production to the point of overpopulation for some species.

• If water levels recede in lakes where artificial reefs exist, exposing the trees or tires, the material is unsightly. Reef-tops could also become boating hazards. Note: This should not happen if U.S Army Corps of Engineers 404 permits are followed. Even the Game and Fish Department has to go through the Corps permitting process to put material in lakes.

• If a reef works in one area, public perception is that it will work in all areas. People may assemble and install reefs without Department approval if they think it will help their lake, or they may, with good intentions, leave Christmas trees on a lake on their own. Citizens who construct reefs on their own, or leave trees on frozen lakes (where the tree will wind up on shore after the ice goes out) could be subject to a littering violation. These situations are easily avoided by involving a local fisheries biologist in any prospective reef project.

To pass along your comments, send us an email at ndgf@state.nd.us; call us at 701-328-6300; or write North Dakota Game and Fish Department, 100 N. Bismarck Expressway, Bismarck, ND 58501.